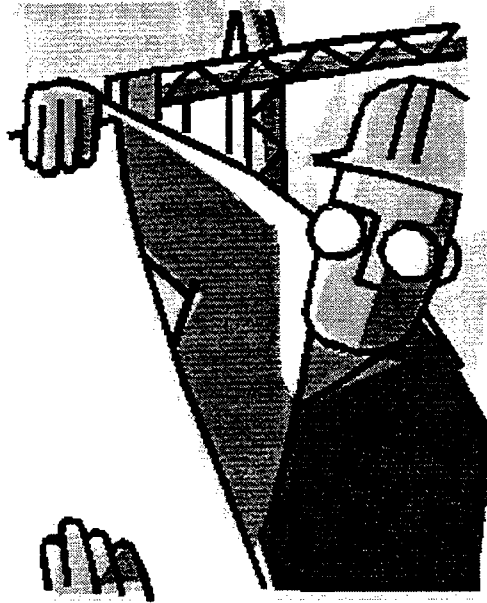

Chapter 12

Plant Master Plan

PLANT MASTER PLAN



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1. INTRODUCTION

In periods of growing demand, investors usually take the opportunity to set milestones in direction of improving productivity and expanding capacity as well as controlling cost. New plants, or suitable plant extensions, are the appropriate answers then. In period of harsh competition, shrinking market shares, high interest rates and thus tight investment budgets, it proves to be difficult to even keep up the pace of change in technology.

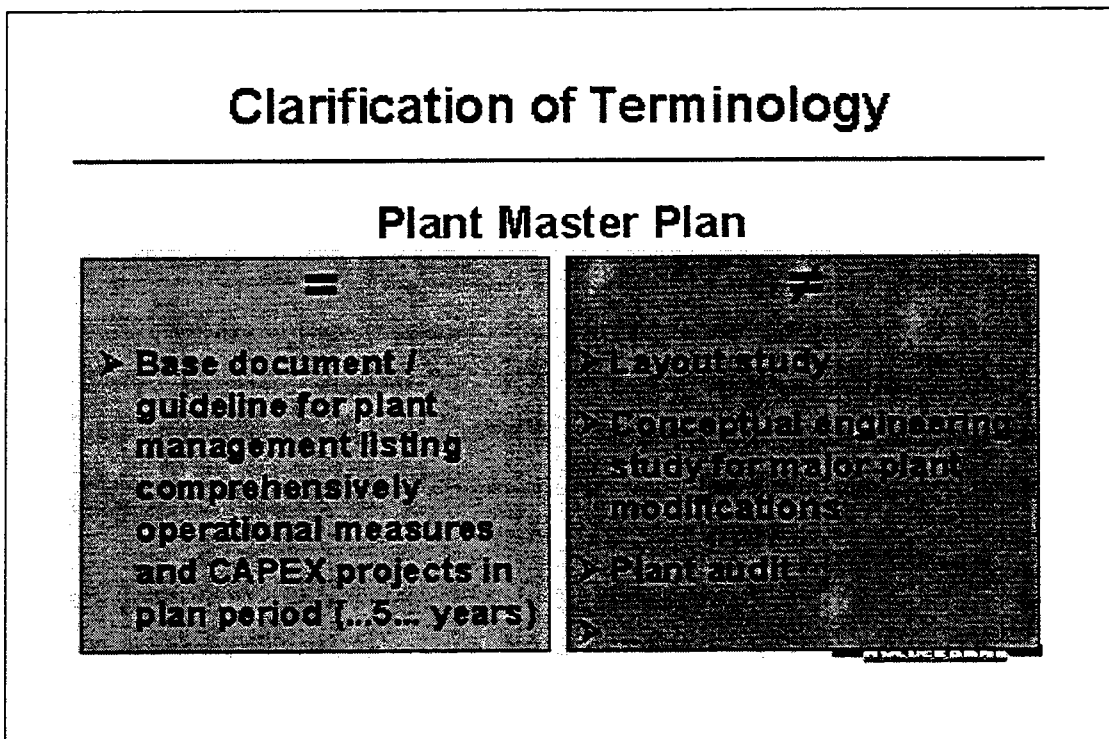
Comprehensive know-how and adequate assistance are always required to adapt the company to the changing requirements and the future needs.

As the immediate and future needs of a company are determined mainly through a dynamic process of changing parameters of the environment, a dynamic planning instrument must be used for the identification and registration of these needs.

This appropriate instrument is called Plant Master Plan.

2. CLARIFICATION OF TERMINOLOGY

Plant Master Plans are, since a long time, a well known planning tool on plant level. However, so far, there was no common understanding on purpose and content of Plant Master Plans and for this reason a vast variety of plans were called Plant Master Plans.



In recent years attempts were made in the "Holderbank" Group to standardize the Company Planning Cycle and in particular the Business Planning Process. This standardization called for a clear definition of the objectives and the contents of Plant Master Plans: The Plant Master Plan shall be the tool for plant management, comprehensively outlining the operational measures and CAPEX projects to be implemented in the plan period.

"The Plant Master Plan" is a strategic paper outlining the development of the plant in all its fields of activity, taking into account the directives of the corporate strategy and the relevant external and internal factors.

3. PLANT MASTER PLANS: COMMON PROBLEMS

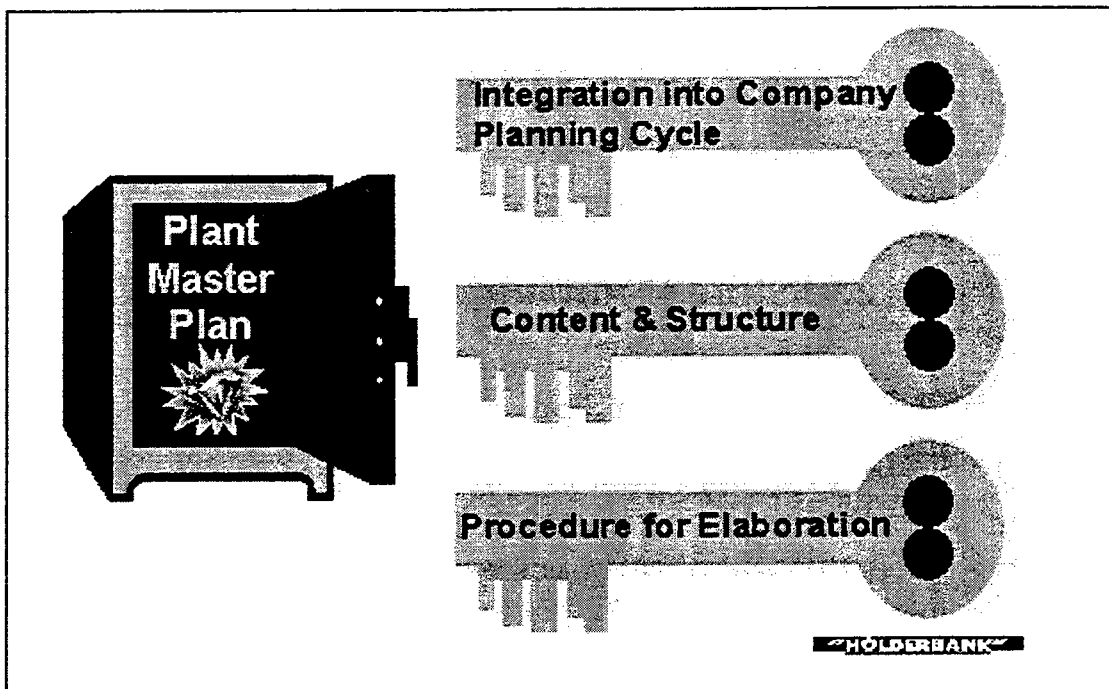
A closer look at the realities of Plant Master Planning reveals following common problems:

Plant Master Plans : Common Problems

- **Lack of coordination with Business Plan**
- **Shortcomings in sustainability**
- **Wishful thinking**
- **Strong focus on physical installations and CAPEX**
- **Lack of economic analysis**
- **Lack of involvement**
- **Lack of alternatives**
- **Lack of longterm thinking**
- **Problem solving mainly by CAPEX**
- **...**

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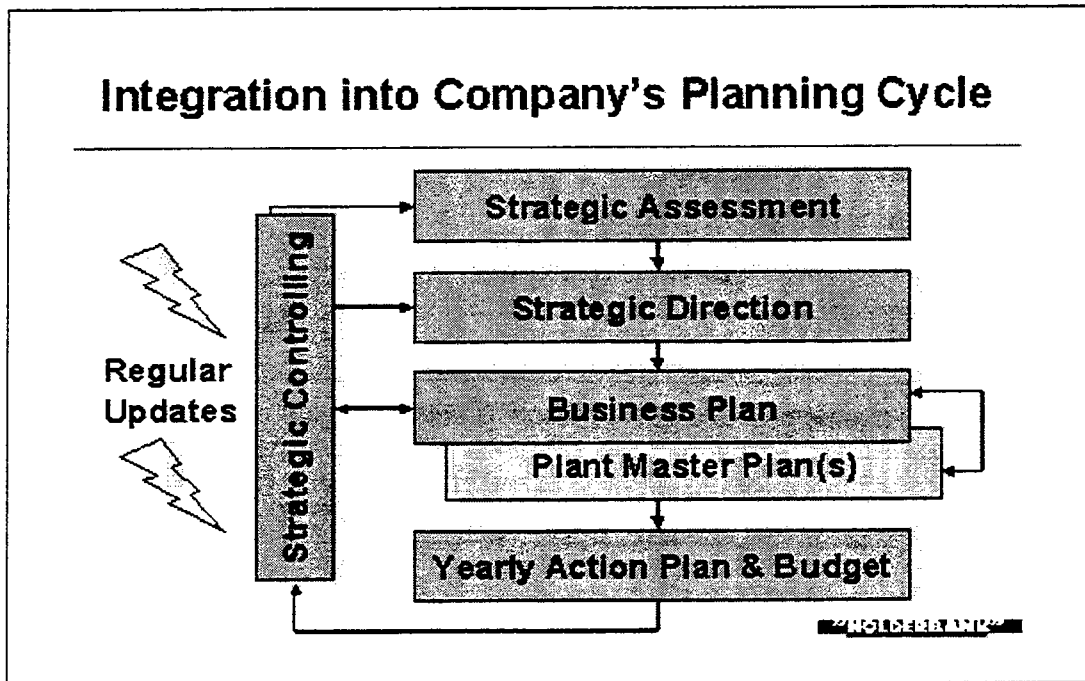
Analysis of these problems shows that they touch 1) the integration of the Plant Master Plan into the company's planning cycle, 2) the content and structure of the Plant Master Plans, and 3) the procedure for elaborating Plant Master Plans.



Properly addressing these three problems provides in fact the keys to successful Plant Master Planning. If these three elements are mastered, the result then is a Plant Master Plan which is a helpful and valid tool for plant management to operate and develop their plant in compliance with company strategy and Business Plan objectives.

4. INTEGRATION IN COMPANY'S PLANNING CYCLE

Elaborating a Business Plan and the corresponding Plant Master Plan(s) is an iterative process: On the one hand, the Plant Master Plan translates strategy into operational measures and on the other hand it provides input to the Business Plan, e.g. production and investment costs.



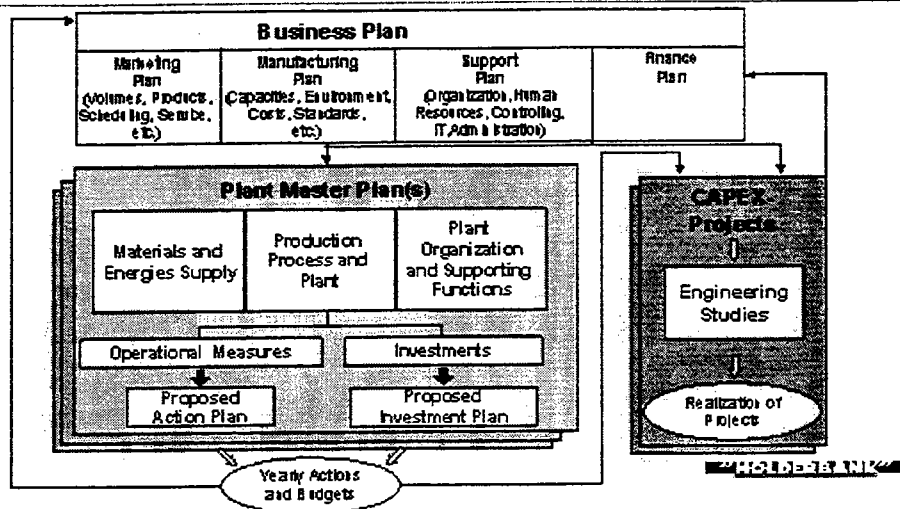
Integration into Company's Planning Cycle

The Plant Master Plan

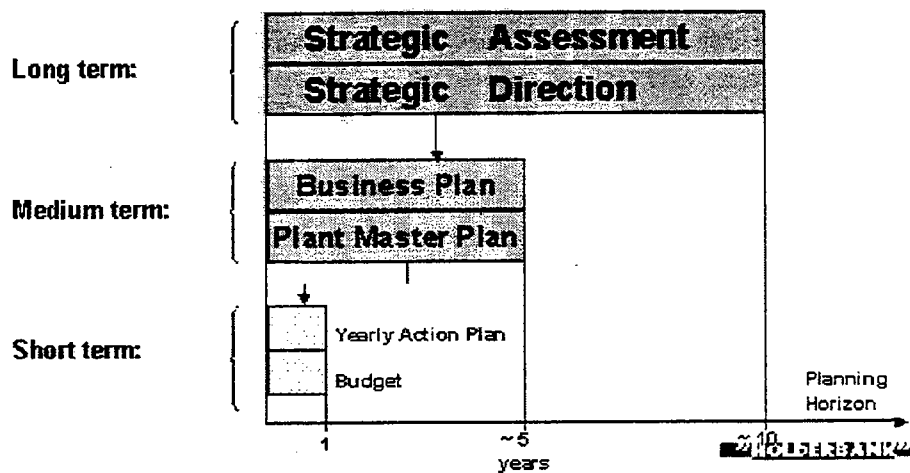
- translates strategy into organizational / operational measures and CAPEX projects on plant level
- provides input for the Business Plan (plant needs as input to Business Plan; investment / production cost)

Iterative Process

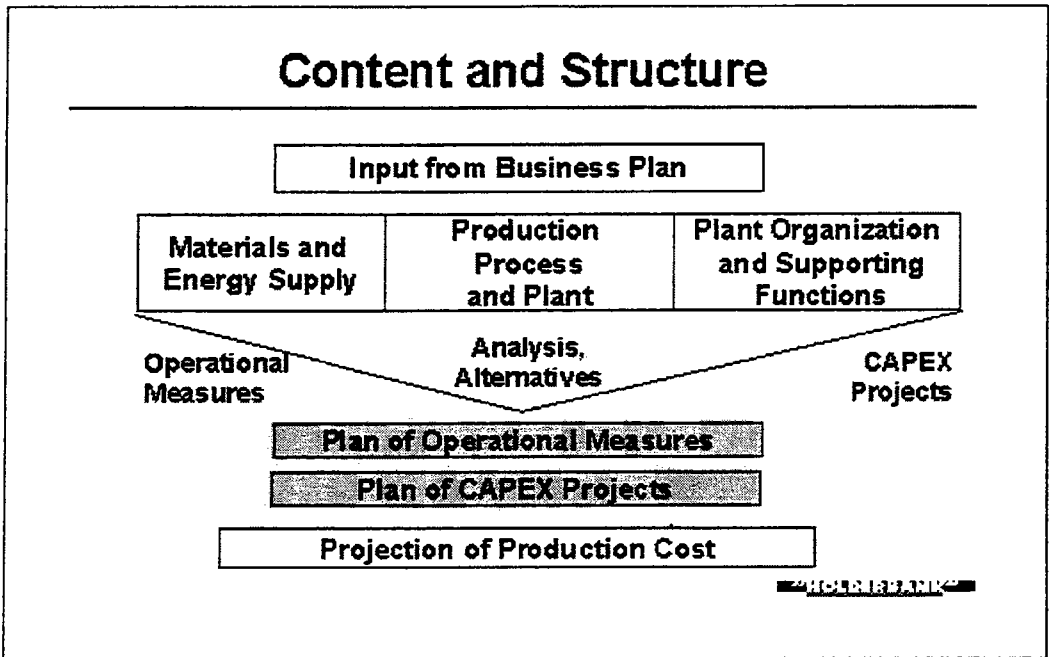
Integration into Company's Planning Cycle



Integration into Company's Planning Cycle

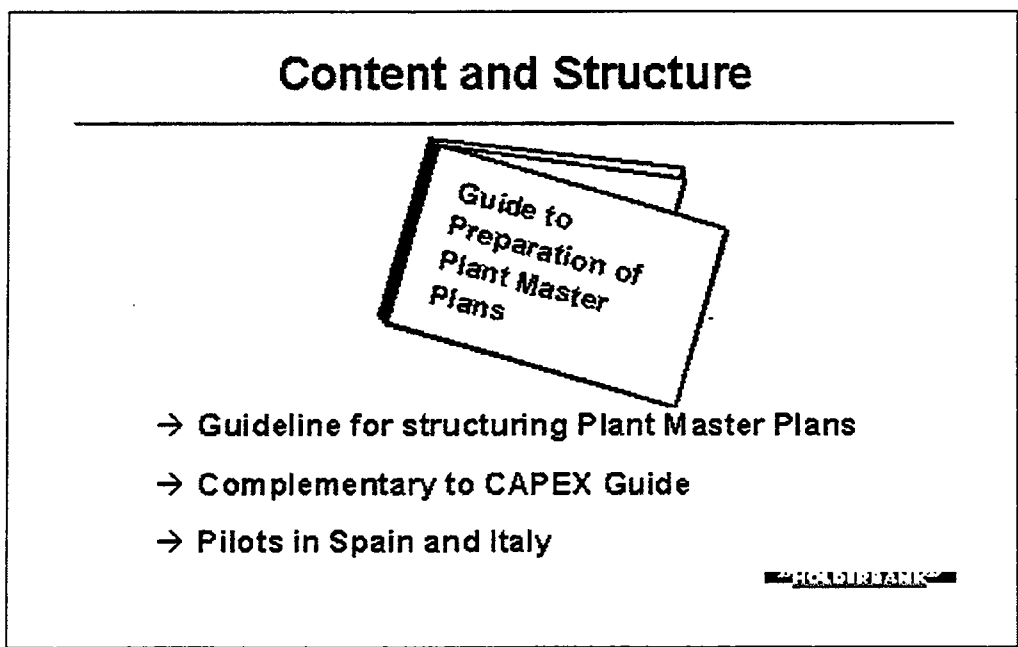


5. **CONTENT AND STRUCTURE OF PLANT MASTER PLAN**



The Plant Master Plan identifies gaps in the areas of materials and energy supply (from main raw materials and fuels to alternative raw materials and fuels and mineral components etc.), production process and plant (from raw material extraction to dispatch, internal and external infrastructure etc.) and plant organization and supporting functions (from organizational structure to crossfunctional processes, like maintenance, quality assurance etc.).

The Plant Master Plan clearly defines operational measures and CAPEX projects and indicates priorities, cost impacts and financial benefits.



6. PROCEDURE FOR ELABORATION OF PLANT MASTER PLANS

**Procedure for Elaboration of
Plant Master Plans**

General approach for individual plant sections and functions:

- 1. Assessment of status quo
Implications of Business Plan**
 - 2. Alternatives: elaboration, evaluation, selection
(optimum exploitation of existing facilities)**
 - 3. Operational / organizational
measures**
 - 4. CAPEX projects**
- } **Description
Cost / Return
Priority**

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To assure comprehensiveness of the Plant Master Plan, the team put together to elaborate such a Plant Master Plan must be composed interdisciplinarily, providing knowledge and experience from all relevant areas and disciplines.

On the other hand such a team should include not only plant staff but also representatives of the company management to assure that those who will be responsible for its implementation are really committed to the proposals and priorities of the resulting Plant Master Plan.

Including external experts, from HMC and/or from other companies and their plant, further helps to challenge the status quo and to consider a variety of alternatives (Faster Learning Organization). Priority focus must be on optimum exploitation of existing installations in order to minimize CAPEX.

Procedure for Elaboration of Plant Master Plans

Targets:

- **Comprehensive approach**
- **Challenge of status quo**
- **Consideration of a variety of alternatives**
- **Commitment**

Team configuration:

- **Interdisciplinary**
- **Plant**
- **Company**
- **HMC**
- **Other companies, plants**

7. **CONCLUSION AND KEY MESSAGES**

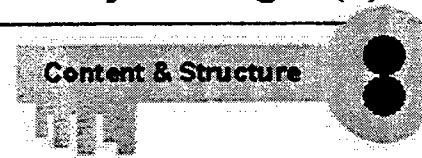
Key Messages (1)



The Plant Master Plan is an integral element of the planning cycle, translating strategy into operational measures and CAPEX projects, on a five year horizon.

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Key Messages (2)

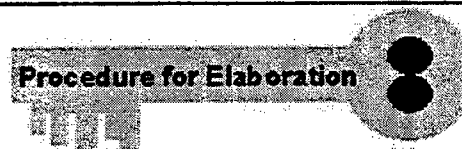


The Plant Master Plan ...

- identifies gaps in all relevant aspects in the areas of materials and energies, production process and organization
- clearly defines operational measures and CAPEX projects and indicates priorities, cost impacts and financial return

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Key Messages (3)



- Elaboration requires an interdisciplinary team from the plant, the company, HMC and other companies / plants to assure a comprehensive approach, challenging the status quo, considering a variety of alternatives and get the commitment.
- Priority focus on optimum exploitation of existing installations in order to minimize investments.

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